PD – 310 / 2604 Series

User's Manual

Rev. Original

FCC Notes:

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested an found to comply with limits for a Class A digital device pursuant to subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures to correct the interference.

Warranty Limits:

Warranty terminates automatically when any person other than the authorized technicians opens the machine. The user should consult his/her dealer for the problem happened. Warranty voids if the user does not follow the instructions in application of this merchandise. The manufacturer is by no means responsible for any damage or hazard caused by improper application.

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BRIEF INTRODUCTION

THE PRODUCT

The PD-310/ PD-2604 is a rear top mount customer display option designed for Posiflex KS-6215 Plus or KS-661X or KS-731X series POS terminals. It is delivered in separate carton for KS series and shall be installed per instructions in this manual.

FEATURES

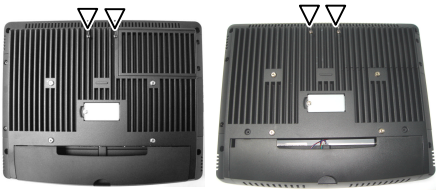
- LCD (Liquid crystal display) with dark blue character and yellow green back-light for PD-310
- Bright VFD (vacuum fluorescent display) with green filter for PD-2604
- Two-line display with 20 characters per line
- Easy viewing characters (6.0 mm by 9.66 mm for PD-310 / 9.03 mm by 5.25 mm for PD-2604)
- Long life and trouble free operation
- Simple installation
- Selectable between Serial (RS232) interface model and USB interface model
- Selectable command emulation modes including PST and EPSON command emulation modes for PD-310
- Various command emulation modes selectable by DIP switch for PD-2604
- Support 13 Code Pages of 128 characters each for PD-2604
- Support 12 international character sets of 12 characters each for PD-2604
- Supports UPOS 1.8 and is WEPOS ready for PD-2604

INSTALLATION GUIDES

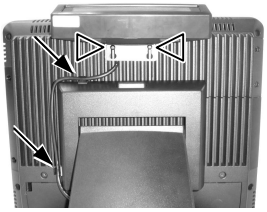
HOST SYSTEM PREPARAION

For serial interface (RS232) PD-310 or PD-2604 to be used in KS series, you have to adjust during power off the internal jumper of the host system to **supply 5 V DC** to the COM port selected for the serial interface pole display. This adjustment has to be done by a qualified electronic technician following guide from relevant technical manual. The default communication protocol should be set to 9600 bps, none parity, 8 data bits, 1 stop bit with hardware handshaking on CTS. The power for the USB interface type pole display is supported through the USB connection. However, should these customer displays are to be connected through an USB HUB instead of a direct USB port of the system, the HUB must be powered by a separate power adaptor otherwise there could be the power shortage problem.

INSTALLATION

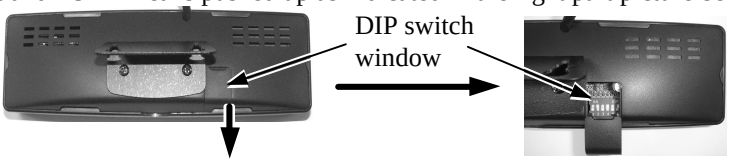


To mount the rear top mount upgrade kit like PD-310 or PD-2604 on the back of KS series, please apply carefully the 2 small fixation shoulder screws that come along with PD-310 or PD-2604 to the back of KS series at the screw hole triangle marked in the 2 upper right pictures. However please do not screw them to the bottom but at a position that is about 1 turn loose from the bottom. Similarly please loosen the screws by 1 turn for some KS models with these 2 screws preinstalled. Arrange the interface cable of the rear top mount upgrade kit to go into **the first groove to the right of the left shoulder screw** on back of main unit as in the lower picture at right. For host models with gen 6 super slim base, please stick the 2 attached cable clips at arrowed positions of gen 6 base in the picture for cable routing when later joining the main unit to gen 6 base. Hook the rear bracket of the upgrade kit onto the shoulder screws. Slide down the upgrade kit and gently tighten the shoulder screws. **Do not overdo the tightening or unrecoverable thread damage will occur.** Remember to disable the +5 V DC supply in the COM port of the main unit if the upgrade kit is no longer to be used otherwise **any damage or loss caused consequently shall be out of product warranty!** However, if the customer display used is the USB interface model, the DC supply in COM port is not required, it will be powered through the USB port.



COMMAND EMULATION MODE SETUP (FOR PD-2604)

Now please check the back of PD-2604 display head as in the left picture below. There is a small piece of plastic cover for the "DIP switch window". Slide the cover downward but don't pull it off otherwise you may have to practice for inserting it back. You can find 6 positions of DIP switches in this window. Adjust for the appropriate command mode used by the application program according to below table. Switch position counts from left to right and "ON" means pushed up as indicated in the right part picture below.



Switch Position						Command Mode
1	2	3	4	5	6	
ON	OFF	OFF	ON	OFF	OFF	ADM
ON	OFF	ON	ON	OFF	OFF	Aedex
ON	OFF	ON	OFF	OFF	OFF	Epson
ON	OFF	OFF	ON	ON	OFF	Futaba
ON	OFF	ON	OFF	ON	OFF	Noritake
ON	OFF	ON	ON	ON	OFF	UTC

The factory default command mode is set to Noritake mode for normal delivery. Please change it to Epson mode if OPOS or UPOS driver is used for the application program.

POWER ON SIGN

With interface cable connection well installed (and with COM port power set for serial models), turn on the KS Posiflex POS system, a firmware identifier as power on sign will appear on the pole display screen for a while to indicate that pole display is self-tested O.K. and ready to work.

USING THE CUSTOMER DISPLAY

INTERRFACE SELECTION

This series of customer display is designed to serve in KS series Posiflex POS systems with RS232 interface models and with USB interface models. It is advisable to well study the I/O port availability of the host system before determining which interface model to be used.

In case the RS232 interface PD-310 / 2604 is to be removed from the KS system, consequently the jumper has to be changed back to neutralize the COM port power support, **otherwise damage could occur**!

The USB interface model of PD-310 / 2604 should be connected directly to an USB port and **must not be through any non-self-powered USB HUB** to get power through the USB port itself and there is no need for other special arrangement.

COMMAND MODE SELECTION GUIDE

The below table provides some comparison for selection on command mode to be used in the application program for PD-2604 if it is not yet determined.

Mode	**ADM**	**Aedex**	**Epson**	**Futaba**	**Noritake**	**UTC**
Cursor	N.A.	N.A.	Invisible	Blinking Block	Blinking Block	Blinking Block (DP)
Default mode	N.A.	N.A.	Over/W	V. scroll	Over/W	PT
User defined font	N.A.	N.A.	2 chars	N.A.	2 chars	2 chars (PT)
Brightness control	NO	NO	YES	YES	YES	YES (DP)
Leading code change	NO	YES	NO	YES	YES	YES (PT)
Code page select	NO	NO	YES	YES	YES	YES
Auto scroll message	NO	NO	NO	YES	YES	YES (PT)
Timer clock	NO	NO	YES	NO	NO	YES (PT)

For PD-310 it is always the Epson command mode at power on. It can enter or exit the PST command mode through software command.

DRIVER INSTALLATION

FOR RS-232 INTERFACE MODELS:

For direct I/O control over the serial interface (RS232) models, you have to send all commands (listed later in this manual) under communication protocol 9600 bps, none parity, 8 data bits, 1 stop bit with hardware handshaking on CTS signal to the COM port used. No other driver installation is required.

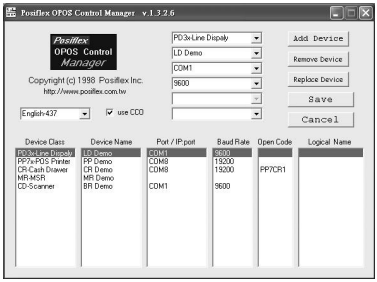
FOR USB INTERFACE MODELS:

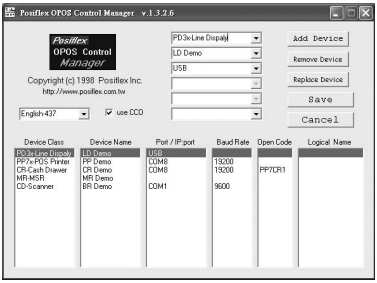
Copy the driver and library from Posiflex Product Information CD or DVD under \Drivers\PD23_26U to your system or download from web site http://www.posiflex.com.tw/Download%20list.asp?Status=1&Series_Name=PD%20Series&Model_Name=PD-2300U. Follow instructions given in the file "README.TXT" to send commands (listed later in this manual) and data to the customer display under the programming language.

FOR OPOS APPLICATION:

Find the subfolder \Drivers\UPOS\OPOS of the Posiflex Product Information CD or DVD or download it from web site http://www.posiflex.com.tw/Download%20list.asp?Status=1&Series_Name=UPOS&Model_Name=OPOS and execute the file "SETUP.EXE" to install the

OPOS Control Manager. To add the customer display under OPOS control please set in OPOS Control Manager device name “PD3x-Line Display” in the top row. For RS-232 models, select the COM port in the 3rd row and set baud rate to “9600” in 4th row as in the left sample screen below. Select “USB” in 3rd row for USB interface models as in the right sample picture below.





SPECIFICATION

OPTICAL

Number of digits	20 digits/row, 2 rows
Dot matrix	5 X 7 dots
Digit height	9.66 mm (PD-310) / 9.03 mm (PD-2604)
Digit width	6.0 mm (PD-310) / 5.25 mm (PD-2604)
Display color	Dark blue (PD-310) / Green (PD-2604)

MECHANICAL

Display Head Height	57.5 mm
Display Head Width	196.6 mm
Display Head Depth	39.5 mm
Case color	Black

ELECTRICAL

Power from interface port of KS system: + 5VDC 1A

ENVIRONMENTAL

Operating temperature	0° to + 40°C
Storage temperature	-10° to + 60°C
Operating humidity	20% to 85%, non-condensing
Storage humidity	5% to 90%, non-condensing

WARNING: If the user opens the pole display housing to make any modification, all the product warranty will be voided.

NOTE: Please refer to Posiflex Product Information CD or DVD or visit our web http://www/posiflex.com.tw for further information when needed.

APPENDIX

APPLICABLE COMMANDS (FOR PD-310)

EPSON COMMAND MODE (POWER ON DEFAULT):		
NAME	**HEX CODES**	**FUNCTION**
BS	<08>	Move Cursor Left
HT	<09>	Move Cursor Right
LF	<0A>	Move Cursor Down
HOM	<0B>	Move Cursor To Home Position
CLR	<0C>	Clear Display Screen
CR	<0D>	Move Cursor To Left Most Position
CAN	<18>	Clear Cursor Line
ESC =	<1B><3D><n>	Select Peripheral Device / Command Mode n=1 pass through (should not be used) n=2, 3 (not required) n=4 switch to PST command mode
ESC @	<1B><40>	Initialize Display
ESC t	<1B><74><n>	Disable / Enable Euro Dollar Sign n = 0, 19
US MD1	<1F><01>	Specify Overwrite Mode
US MD2	<1F><02>	Specify Vertical Scroll Mode
US MD3	<1F><03>	Specify Horizontal Scroll Mode
US LF	<1F><0A>	Move Cursor Up
US CR	<1F><0D>	Move Cursor To Right Most Position
US $	<1F><24><n><m>	Move Cursor To Specified Position n = 1 ~ 20 m = 1, 2
US @	<1F><40>	Show Version
US B	<1F><42>	Move Cursor To Bottom Position
US C	<1F><43><n>	Cursor On / Off, n = 1, 0
US E	<1F><45><n>	Blink Display Screen n = 0 ~ 255

PST COMMAND MODE:	
HEX CODES	**FUNCTION**
<01>	Set Pass Through Flag (should not be used)
<06> <N_1> <N_2>	Change Leading Code
<14> <01>	Wraparound Mode (Default)
<14> <02>	Vertical Scroll Mode
<14> <03>	Insert Mode

<14> <04>	Overwrite Mode (Default)
<14> <08>	Back Space
<14> <09>	Move Cursor Right
<14> <0A>	Move Cursor Down
<14> <0B>	Move Cursor Left
<14> <0C>	Delete Character
<14> <0D>	Move Cursor To Left Most Position
<14> <0E>	Clear Display
<14> <10>	Clear Line 1
<14> <11>	Clear Line 2
<14> <12>	Cursor Block Mode
<14> <13>	Cursor Under Line Mode
<14> <15> <02>	Clear Pass Through Flag
<14> <16>	Switch To Epson Mode
<14> <17>	Cursor On
<14> <18>	Cursor Off
<14> <19>	Reset
<14> <1A> <P>	Move Cursor To Position P (P=0~13,14~27h)
<14> <1B>	Move Cursor To Rightmost Position Of Line 1
<14> <1C>	Move Cursor To Rightmost Position Of Line 2

The Euro Dollar Sign is designated at code <D5>h.

COMMAND CODES SUMMARY (FOR PD-2604)

Command	**Function**	**Command**	**Function**
ADM mode			
0C	Clear Display	*10*	Write Decimal Point
0D	Carriage Return	*1E*	Write Field 1
0E	Write Line 1	*1F*	Write Field 2
0F	Write Line 2		
AEDEX mode	Attention code + Function code + data + **CR**		
1	Display top	7	Stop trapping
2	Display bottom	8	Change attention code
4	On going scroll	9	Display whole area
6	One time scroll		
EPSON mode			
BS	Move cursor left	**US** ;	Mark semicolon
HT	Move cursor right	**US** <	Clear mark
LF	Move cursor down	**US** E	Set/cancel blinking
HOM	Move cursor home	**US** T	Set and display counter
CLR	Clear display screen	**US** X	Brightness adjustment

CR	Move cursor left-most	**ESC** %	Set/cancel user-defined char.
CAN	Clear cursor line	**ESC** &	Define user-defined char.
US MD1	Overwrite mode	**ESC** ?	Delete user-defined char.
US MD2	Vertical scroll mode	**US** @	Show firmware version
US MD3	Horizontal scroll mode	**ESC** =	Select peripheral device
US LF	Move cursor up	**ESC** t	Select code page table
US CR	Move cursor right-most	**US** B	Move cursor to bottom
US $	Move cursor specified	**ESC** @	Initialize display
US ,	Mark comma	**ESC** R	International character set
US .	Mark period	**US** U	Display counter
FUTABA mode			
1F	Reset	*10* ***pp***	Digit select
04 ***bb***	Brightness control	*13*	Cursor on
1E ***pp***	Change code page	*14*	Cursor off
1C ***0i***	International character set	*08*	Back space
05 • • • 0D	Moving sign	*11 09*	Horizontal tab
06 ***x1 x2***	Change leading code	*12 09*	Vertical scroll up
01	Set pass through flag	*11 0A*	Cursor up/down
x1 x2 *02*	Clear pass through flag	*12 0A*	Line feed
		0D	Carriage return
NORIRAKE mode			
1B 49	Reset	*1B 54* ***nn***	Cursor blinking Rate
0E	Clear	*15*	Cursor on
1B 4C bb	Brightness control	*16*	Cursor off
1E ***pp***	Change code page	*08*	Back space
1C ***0i***	International character set	*11 09*	Horizontal tab
05 • • • 0D	Moving sign	*12 09*	Vertical scroll up
06 ***x1 x2***	Change leading code	*11 0A*	Cursor up/down
01	Set pass through flag	*12 0A*	Line feed

x1 x2 *02*	Clear pass through flag	*0C*	Form feed
1B 48 ***pp***	Digit select	*0D*	Carriage return
1B 43 ***ad x1 ~ x5***	User defined fonts		
UTC Pass through mode	Command [+data] [+**CR**]		
ESC uA	Top line message	**ESC** uH	Redefine graphic
ESC uA **CR**	Clear top line	**ESC** uIx	Display fonts
ESC uB **CR**	Clear bottom line	**ESC** uE	Set/Display time
ESC uB	Bottom line message	**ESC** utcE***x***	Change d mode
ESC uD	Continuous scrolling	**ESC** utcF***x***	Change RS mode
ESC uF	Top line scroll once	**ESC RS** *	Direct to pole mode
UTC Direct to pole mode			
EOT ***x***	Brightness	**DC4**	Cursor off
BS	Back spacing	**CAN**	Clear to end of line
HT	Horizontal tab	**EM**	Clear to end of display
LF	Line feed	**SUB** ***x***	Display fonts
CR	Carriage return	**ESC** d *	Pass thru mode
DLE	Display position	**FS**	Flashing text start
DC1	Normal display mode	**GS**	Flashing text end
DC2	Vertical scroll mode	**RS**	Clear display
DC3	Cursor on	**US**	Reset display

INTERNATIONAL CHARACTER SETS (FOR PD-2604)

Hex code	Country	Hex code	Country
0	USA	6	Italy
1	France	7	Spain
2	Germany	8	Japan
3	United Kingdom	9	Norway
4	Denmark I	A	Denmark II
5	Sweden	B	Ex-Jugoslavia

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